



This document is scheduled to be published in the Federal Register on 12/22/2015 and available online at <http://federalregister.gov/a/2015-32096>, and on FDsys.gov

[Billing Code 4140-01-P]

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Government-Owned Inventions; Availability for Licensing

AGENCY: National Institutes of Health

ACTION: Notice

SUMMARY: The inventions listed below are owned by an agency of the U.S.

Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 209 and 37 CFR Part 404 to achieve expeditious commercialization of results of federally-funded research and development. Foreign patent applications are filed on selected inventions to extend market coverage for companies and may also be available for licensing.

FOR FURTHER INFORMATION CONTACT: Licensing information and copies of the U.S. patent applications listed below may be obtained by emailing the indicated licensing contact at the National Heart, Lung, and Blood, Office of Technology Transfer and Development Office of Technology Transfer, 31 Center Drive Room 4A29, MSC2479, Bethesda, MD 20892-2479; telephone: 301-402-5579. A signed Confidential Disclosure Agreement may be required to receive copies of the patent applications.

SUPPLEMENTARY INFORMATION: Technology description follows.

Metallic Nanoparticles for Photothermal Therapy

Description of Technology: The invention relates to the preparation and application of 20-150nm metallic nanoparticulate vesicles for photothermal anti-cancer therapy. The vesicles comprise metallic nanoparticles covalently bound to a hydrophilic and hydrophobic polymer. The preparation method generally entails dispersing a polymer-bound metallic nanoparticle in an organic solvent, adding an aqueous solution with a dispersing aid, sonicating the mixture, and finally removing the organic solvent until the vesicle forms. The final vesicle is stable wherein the metallic nanoparticle is covalently bound to the hydrophobic and hydrophilic polymer. By way of a non-limiting example, an exemplary vesicles can be one made from gold nanorods coated with polyethylene glycol and polylactic-co-glycolic acid (AuNR@PEG/PLGA) in an oil-in-water emulsion.

Potential Commercial Applications:

- Cancer therapy
- Tumor therapy

Competitive Advantages:

- Prolonged circulation
- High tumor accumulation
- Rapid excretion
- Enhanced photoacoustic signal
- enhanced photothermal effect/cancer therapy efficacy.

Development Stage:

- In vitro data

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Intellectual Property: HHS Reference No. E-158-2015/0 –US-01

- US Provisional Patent Application 62/226,289 filed December 11, 2015.

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Collaborative Research Opportunity: The National Institute of Biomedical Imaging and Bioengineering seeks statements of capability or interest from parties interested in collaborative research to further develop and evaluate metallic nanoparticle vesicles for cancer phototherapy. For collaboration opportunities, please contact Cecilia Pazman, Ph.D. at pazmance@nhlbi.nih.gov.

Dated: December 15, 2015

Michael Shmilovich

Senior Licensing and Patenting Manager

National Heart, Lung, and Blood Institute,

Office of Technology Transfer and Development

[FR Doc. 2015-32096 Filed: 12/21/2015 8:45 am; Publication Date: 12/22/2015]